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Form: PTO/SB/17 (Modified)

REPLY/AMENDMENT FEE TRANSMITTAL

Attorney Docket No.	95-535
Application Number	10/612,954
Filing Date	July 7, 2003
First Named Inventor	LEE
Group Art Unit	2685
Examiner Name	HAROON, Adeel

AMOUNT ENCLOSED	$ 0

FEE CALCULATION (fees effective 10/01/2003)

CLAIMS AS AMENDED	Claims Remaining After Amendment	Highest Number Previously Paid For	Number Extra	Rate	Calculations
TOTAL CLAIMS	7	20	0 (3)	X $50.00 =	$0
INDEPENDENT CLAIMS	2	3	0	X $200.00 =	$0

Since an Official Action set an original due date of_____, petition is hereby made for an extension to cover the date this reply is filed for which the requisite fee is enclosed (1 month ($120); 2 months ($450); 3 months ($1020); 4 months ($1,590); 5 months ($2,160)):	$0
If Statutory Disclaimer under Rule 20(d) is enclosed, add fee ($110)	+$0
Total of above Calculations =	$0
Reduction by 50% for filing by small entity (37 CFR 1.9, 1.27 & 1.28)	-
TOTAL FEES DUE =	$0

(1) If entry (1) is less than entry (2), entry (3) is "0".
(2) If entry (2) is less than 20, change entry (2) to "20".
(4) If entry (4) is less than entry (5), entry (6) is "0".
(5) If entry (5) is less than 3, change entry (5) to "3".

METHOD OF PAYMENT

[ ] Check enclosed as payment.

[ ] Charge "TOTAL FEES DUE" to the Deposit Account No., below.

AUTHORIZATION

[X] If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees under 37 CFR 1.16 or 1.17 necessary to maintain pendency of the present application to:

Deposit Account No.:	50-0687
OrderNo.: (Client/Matter)	95-535

SUBMITTED BY: MANELLI DENISON & SELTER PLLC

Typed Name	Leon R. Turkevich	Reg. No.	34,035
Signature		Date	February 2, 2006

Docket No.: 95-535 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

LEE *et al.*

Serial No.: 10/612,954 Group Art Unit: 2685

Filed: July 7, 2003 Examiner: HAROON, Adeel

For: OPTIMAL INITIAL GAIN SELECTION FOR WIRELESS RECEIVER

RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Official Action mailed November 3, 2005, Applicant presents the following remarks.

Reconsideration and allowance of the above-referenced application are respectfully requested. Claims 1-7 are unchanged and remain pending in the application.

Claims 1 and 4 stand rejected under 35 USC §102(b) in view of U.S. Patent No. 5,917,865 to Kopmeiners et al. This rejection is respectfully traversed.

Each of the independent claims 1 and 4 specify an arrangement for determining an optimum gain for a received wireless signal relative to one of an initial gain value, or a minimum gain value. Claim 1 is exemplary:

> 1. A method in a wireless transceiver, the method including:
> setting a gain to an ***initial gain value*** for mapping a received wireless signal to a first power value for supply of the received wireless signal to an input circuit having a prescribed input range;
> amplifying the received wireless signal ***by the initial gain value to the first power value***;

if the first power value of the received wireless signal does not exceed the prescribed input range, determining an optimum gain for the received wireless signal relative to the initial gain value and the first power value;

if the first power value of the received wireless signal exceeds the prescribed input range, determining the optimum gain for the received wireless signal based on setting the gain to a minimum gain value; and

outputting the received wireless signal at the optimum gain.

Claim 4 specifies a digital gain controller configured for performing the same operations of setting the gain to an initial value, determining the optimum gain for the received wireless signal relative to the initial gain value if the first power value does not exceed the prescribed input range, and determining the optimum gain for the received wireless signal based on setting the gain to a minimum gain value if the first power value does exceed the prescribed input range.

Hence, independent claims 1 and 4 explicitly specify a logical procedure for which there are only two possible settings for determining the optimum gain, depending on the first power value:

1) if the first power value of the received wireless signal does not exceed the prescribed input range, the optimum gain is determined relative to the initial gain value and the first power value ("initial gain mode"); however,

2) ***if the first power value of the received wireless signal does exceed the prescribed input range, the optimum gain is determined based on setting the gain to a minimum gain value*** ("minimum gain mode").

The claimed use of one of only two available settings for determining the optimum gain provides the advantageous feature of a dramatic improvement in the time needed to determine the optimum gain. Hence, the speed in determining the optimum gain can be dramatically improved to within two steps (namely, within two execution cycles of a state machine) (see, e.g., page 7, lines 3-9, eliminating the delays normally encountered by prior art techniques for determining an optimum gain value such as binary search, or incremental gain adjust, described below.

These and other features are neither disclosed nor suggested in the applied prior art.

Kopmeiners et al. provides no disclosure or suggestion whatsoever of the claimed determining the optimum gain for the received wireless signal, ***based on setting the gain to a minimum gain value if the first power value of the receive wireless signal exceeds the prescribed input range***, as claimed. Rather, Kopmeiners et al. discloses the notoriously conventional techniques of applying either: (1) a binary search (i.e., bisection) to adjust the signal to fall within the dynamic range of the ADC 120 (col. 5, lines 36-63), or (2) the preferred increase (or decrease) of the gain through the dynamic range of the ADC 120 in *incremental steps* that **are limited to the dynamic range of the receiver** (e.g., 20dB increments).

In particular, Kopmeiners et al. consistently describes a "search mode", where the gain of a **digitized signal** is adjusted **at a prescribed rate *until*** a sampled peak value of the amplified digitized signal falls within the dynamic range:

> The analyzing circuit includes ... a gain signal adjustment subcircuit that operates in a selected ... search mode in which the gain signal adjustment subcircuit adjusts the variable periods of time to a first interval length and **adjusts the gain signal at *a first rate* until a first one of the sampled peak values falls within the dynamic range of the digital circuit** ....
>
> (Col. 2, lines 27-36).
>
> The present invention therefore introduces an automatic gain control that operates in two modes (or stages) to determine the proper gain signal level. The first mode (the search mode) is characterized by relatively fast, broad **adjustments** of the gain signal **until it comes to within the dynamic range of the digital circuit** (perhaps an analog to digital converter). Once the gain signal is within the dynamic range, the second mode (the direct step mode) is entered.
>
> (Col. 2, lines 45-53).
>
> In one embodiment of the present invention, in the search mode, the gain signal adjustment subcircuit adjusts the gain signal as a function of the dynamic range of the digital circuit. In a more specific embodiment, the gain signal adjustment subcircuit **adjusts the gain signal by an amount that at most approximates the dynamic range of the digital circuit**. For example, if the dynamic range of the digital circuit is 20 dB, the gain signal is adjusted (either downward or upward) **in steps of approximately 20 dB**.

(Col. 2, lines 57-65).

Figure 3 of Kopmeiners et al. provides even further detail that demonstrates that the search mode is implemented by increasing/decreasing the gain by a plurality of successive steps, ***each step equal to the dynamic range of the digital circuit,*** until the sampled peak values are detected within the dynamic range of the ADC circuit 120:

> FIG. 3 depicts a search algorithm which **moves through the dynamic range** of the analog-to-digital converter **in incremental (or decremental) steps *equal to the dynamic range of the receiver***, in this instance, 20 dB. The search mode ends when the received signal comes within the dynamic range of ADC 120.

(Col. 5, line 65 to col. 6, line 5).

As illustrated in Fig. 3 of Kopmeiners et al., the digital signal must be amplified 3 separate times before the peak is detected within the dynamic range of the ADC 120, indicated by the initiation of the "COARSE ADJUST" at time "t3".

Hence, it is impossible for Kopmeiners et al. to teach or suggest the claimed invention, because each of the independent claims explicitly require determining the optimum gain for the received wireless signal based on setting the gain to a ***minimum gain value*** if the first power value of the received wireless signal, which is obtained by amplifying the received wireless signal ***by the initial gain value, exceeds the prescribed input range***. In contrast, Kopmeiners et al. describes that if the peak is not detected within the dynamic range of the ADC 120, then search mode is continued by either bisection search, or **incrementing/decrementing the gain by fixed amounts** until the peak of the amplified digital signal is detected within the dynamic range of the ADC 120.

Hence, the rejection should be withdrawn because it fails to demonstrate that the applied reference discloses each and every element of the claim. See MPEP 2131. "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). "Anticipation cannot be predicated on teachings in the reference which are vague or based on conjecture." *Studiengesellschaft Kohle mbH v. Dart Industries, Inc.*, 549 F. Supp. 716, 216 USPQ 381 (D.

Del. 1982), *aff'd.*, 726 F.2d 724, 220 USPQ 841 (Fed. Cir. 1984). Further, anticipation cannot be established based on a piecemeal application of the reference, where the Examiner picks and chooses isolated features of the reference in an attempt to synthesize the claimed invention. "Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984). Hence, it is not sufficient that a single prior art reference discloses each element that is claimed, but the reference also must disclose that the elements are arranged as in the claims under review. *In re Bond*, 15 USPQ2d 1566, 1567 (Fed. Cir. 1990) (citing *Lindemann Maschinenfabrik GmbH*).

The assertion that decrementing the gain reads on the claimed "setting the gain to a minimum" ("Kopmeiners et al. also discloses that if the first power value exceeds the prescribed input range, setting the gain to a minimum value by decrementing the gain...") is absurd: although the Examiner is entitled to apply a broadest ***reasonable*** interpretation to the claims, the interpretation cannot be so broad as to be inconsistent with the specification: "claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest reasonable interpretation.'" MPEP § 2111.01 at 2100-37 (Rev. 1, Feb. 2000) (quoting In re Marosi, 218 USPQ 289, 292 (Fed. Cir. 1983)(emphasis in original)). As described with respect to steps 204 and 206 of Figure 3 on page 7, lines 27-33, "the initial gain selector 114 resets in step 206 the gain 104 to the minimum gain value ($G=G_{MIN}$), causing the amplifier 100 to output in step 206 the new amplified signal 106 based on the minimum gain."

Further, one skilled in the art would invariably interpret the claimed phrase "setting the gain" as referring to changing the gain in a single step.

Finally, the disclosed "decrementing" the gain cannot read on the claimed setting the gain to a ***minimum gain value*** because the claims specify "amplifying the received wireless signal ***by the initial gain value*** to the first power value"; therefore, the first power value refers to the received wireless signal having been amplified ***by the initial gain value***. Consequently, the claims explicitly specify that if the first power value exceeds the prescribed input range, the gain

is set immediately ***from*** the initial gain value ***to*** the minimum gain value, with no intervening gain value.

In addition, Kopmeiners et al. explicitly specifies that "FIG. 3 depicts a search algorithm which moves ***through the dynamic range*** of the analog-to-digital converter," such that decrementing is performed for maximum-to-minimum searching, and incrementing is performed for minimum-to-maximum searches. In other words, Kopmeiners et al. requires the "initial gain value" to be either the maximum gain or the minimum gain. Consequently, if the first power value in Kopmeiners et al. exceeds the prescribed input range as asserted by the Examiner, the gain cannot be "set to a minimum value" because Kopmeiners et al. **explicitly limits the change to the dynamic range of the digital circuit**. Hence, Kopmeiners et al. inherently requires that the "initial gain value" for decrement-based searches be set at the **maximum gain value,** followed by decrementing the gain by specific steps that are limited to the dynamic range of the digital circuit.

Moreover, *any* decrementing of the gain will reduce the gain to a reduced value, but Kopmeiners et al. specifically prohibits reducing the gain by any more than the dynamic range of the digital circuit. Any subsequent searching by Kopmeiners et al. performs a comparison not on "the ***first*** power value" (defined in the claims as the received wireless signal amplified ***by the initial gain value***), but on a different power value that is outside the scope of the claims.

In contrast, the claims explicitly specify that if the ***first power value*** (defined as the received wireless signal amplified ***by the initial gain value***) exceeds the prescribed input range, the gain is set not to a reduced gain value, ***but to a minimum value.***

For this reason alone, the §102 rejection should be withdrawn.

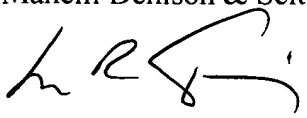
It is believed the dependent claims are allowable in view of the foregoing.

In view of the above, it is believed this application is in condition for allowance, and such a Notice is respectfully solicited.

To the extent necessary, Applicant petitions for an extension of time under 37 C.F.R. 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including any missing or insufficient fees under 37 C.F.R. 1.17(a), to Deposit Account No. 50-0687, under Order No. 95-535, and please credit any excess fees to such deposit account.

Respectfully submitted,

Manelli Denison & Selter PLLC



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